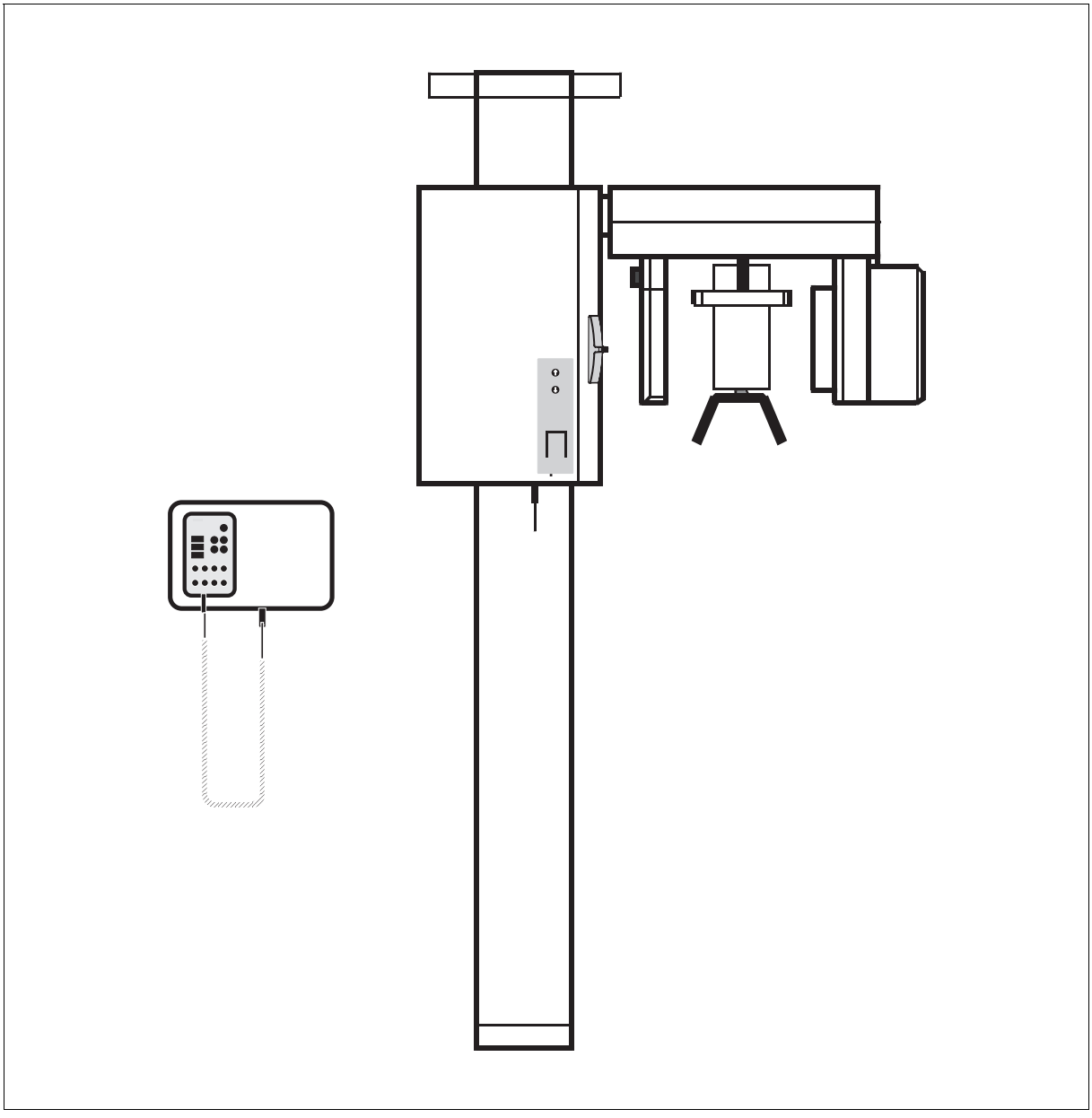
sirona
The Dental Company

ORTHOPHOS 3 DS

Operating Instructions

English



Dear Customer

Thank you for purchasing your new **ORTHOPHOS 3 DS** X-ray unit for panorama planigraphy.

For this unit we have provided you with a set of **technical literature**: Operating Instructions, Installation Instructions, Installation Report / Warranty Passport, Wiring References, Pre-Installation, Dimensions, Technical Data. Keep this literature for quick and easy reference.

In order to protect your warranty rights, please fill out the **"Installation Report / Warranty Passport"** provided together with the technician immediately after installation of the unit.

Read the **Operating Instructions** to familiarize yourself with the unit before taking radiographs on the patient. Please observe the **Radiation Protection Regulations** and **Warning and Safety Notes**.

These Operating Instructions assume a thorough familiarity with the SIDEXIS software.

Your
ORTHOPHOS Team

Maintenance

To ensure the safety of the patient, the operators and third parties, equipment inspections and maintenance work must be carried out at specified intervals in order to guarantee the operational safety and functional reliability of your product.

It is the responsibility of the operator to ensure that the inspections and maintenance work are carried out.

In the event that the operator fails to fulfil the obligation to carry out inspections and maintenance work or ignores error messages, Sirona Dental Systems GmbH or their contracted dealer cannot assume liability for any damage attributable to this.

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1 Warning and Safety Notes

Labeling of warning and safety information

In order to prevent injury to persons and damage to the equipment you must also read the warning and safety notes given in these Operating Instructions. These are emphasized with **ATTENTION** and **CAUTION**.

Intended use

This unit has been designed for use in creating panorama radiographic exposures.

This unit must not be used in areas where there is a risk of explosion.

General safety information

As manufacturers of electro-medical products, we can assume responsibility for safety-related performance of the equipment only if maintenance, repair and modifications are carried out only by us or agencies we have authorized for this purpose, and if components affecting safe operation of the unit that may be needed are replaced with original parts.
We suggest that you request a certificate showing the nature and extent of the work performed, from those who carry out such work, and specify that the certificate show any changes in rated parameters or working ranges, as well as the date, the name of the firm, and a signature.

For reasons of product safety, only **original Sirona accessories** approved for this product, or accessories from third parties which have been released by Sirona may be used. It is the user's risk when using non-released accessories.

Exposures of patients may only be taken if the unit functions fault-free.

Never leave the patient unattended in the unit.

Instructions for avoiding, recognizing and correcting unintended electromagnetic effects:
The ORTHOPHOS 3 DS X-ray System is a unit of class A (classification according to CISPR 11, EN 60601-1-2: 1993 based off IEC 60601-1-2). This unit may be operated in a residential area, provided it is used under the responsibility of a trained medical operator.

Safety measures during switch-on

Following extreme temperature fluctuations, condensate formation may occur; therefore please do not switch on the device until normal room temperature has been reached (see chapter "Technical Description").

When switching on the unit, there must not be a patient positioned in the unit.
If a fault occurs which requires switching the unit off and then back on again, the patient must be taken out of the unit at the latest before switching it on again!

Interference with electromedical devices by radio telephones

To guarantee the operational safety of electromedical devices, it is recommended that the operation of **mobile radio telephones** in the medical practice or hospital **is prohibited**.

Malfunction of electronic units/devices which are worn on the patient's body.

In order to prevent failure of electronic units and data storage devices, e.g. radio-controlled watch and telephone card, etc., it is essential that these be removed prior to X-ray exposure.

Radiation Protection

Observe the applicable health physics regulations.The radiation protection facilities should be used.

The operator should remain as far away from the X-ray tube as the cable of the release button permits.

With the **exception of the patient**, no other persons may remain in the room while the exposure is being made.

Under exceptional circumstances a third person, however not belonging to the dental practice, may then assist. Maintain visual contact with the patient and the unit during the exposure.

In case of faulty operation, discontinue the exposure by releasing the exposure button.

Disassembly and reinstallation

For disassembly and reinstallation of the unit proceed as described in the installation instructions for new installation to ensure perfect function of the unit and its stability.

Disposal

It generally applies that any disposal of this product must comply with the relevant national regulations. Please observe the regulations applicable in your country.

Within the European Economic Community, Council Directive 2002/96/EU (WEEE) requires environmentally sound recycling/disposal of electrical and electronic devices.

Your product is marked with the adjacent symbol. Disposal of your product with domestic
refuse is not compatible with the objectives of environmentally sound recycling/disposal.
The black bar underneath the "garbage can" symbol means that it was put into circulation after Aug. 13, 2005. (see EN 50419:2005)

Please note that this product is subject to Council Directive 2002/96/EU (WEEE) and the applicable national law of your country and must be recycled or disposed of in an environmentally sound manner.

The X-ray tube assembly of this product contains a tube with a potential implosion hazard, a small amount of beryllium, a lead lining and mineral oil.

Please contact your dealer if final disposal of your product is required.

Laser light localizers used

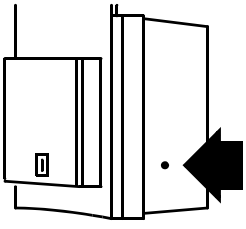
This product incorporates a laser of class 1.

The light localizers serve for the correct positioning of the patient.
They must not be used for other purposes. A minimum distance of 100mm must be maintained between the eye and the laser. Do not look into the beam. Safety operation is described in Section 6.2.

The light localizers may be switched on only if they function fault-free. Repair work may be carried out only by authorized personnel.

2 Technical Description

2.1 Technical Data

Nominal line voltage:	208 V / 230 V - 240 V~
Permissible line voltage fluctuation:	±10 %
Nominal current:	9.7 A
Nominal frequency:	50/60 Hz
Power line resistance:	max. 0.8 Ohm
Fuse at the distribution panel:	20 A slow blow
Rating:	2.1 kW
Tube voltage:	60 – 80 kV
Tube current:	6 – 11 mA
Curve form of high voltage:	high frequency multipulse Residual ripple ≤ 4 kV
Rotation time:	see page 31
Exposure time:	see page 31
Reproduction scale:	With P1 program, medium mandibular arch (plane center) ca. 1:1,19. The image at the image receiver is approximately 19 % larger than the real proportions.
Focus size, according to IEC 336, measured in central ray:	0,5 mm
Focus marking:	
Automatic exposure blockage (see page 27):	The duration of the exposure blockage (cool-off period) depends on the **kV/mA** step set and the actually triggered radiation time. Depending on the tube load, pause times up to 200 s are set automatically. Example: For P1 program with exposure data 74 kV/10 mA and a radiation time of 11.3 s a pause of 200 s results.
Equipment of protective class I Protection against electric shock:	Type B equipment
Protection against penetration of water:	Ordinary equipment (without protection)
Mode of operation:	Continuous operation
Long time power rating:	64 W
Target material:	Tungsten
Loading factors concerning leakage radiation:	1.1 mA / 80 kV
Leakage radiation:	≤ 1 mGy/h

Source - Image receptor distance:	497 mm
Transport and storing temperature:	-40°C – +70°C (-40°F – 158°F)
Relative humidity:	10% – 95%
Permissible operating temperature:	According to IEC 601-1 between +10°C and +40°C (50°F – 104°F)

Sensor (image receptor):

Type:	Digital CCD-technology line sensor, can be plugged to Panorama position.
External dimensions:	280 mm x 120 mm x 35 mm
Active sensor surface:	**Panorama**: 138 mm x 5.9 mm
Resulting image format:	**Panorama:** depends on selected program, max. 138 x 288 mm
Detail recognition:	**Panorama**: 0.09 mm pixel size

Minimum requirements for the PC systems:

Hard disk:	> 2 GByte / database > 50 MByte / SIDEXIS installation
RAM:	at least 64 MB
Drives:	CD-ROM 3.5" diskette (one per system / network) MOD drive min. 640 MByte (one per system / network)
Operating system:	Windows 98 Windows NT 4.0 / Service Pack $\geq$ 5
Graphics system:	Resolution at least 1024 x 768 pixels, color depth at least 8 bit
Network:	10 / 100 MBit Ethernet
Communication connection:	RJ45 for LAN cable

Laser light localizer

Magnitude:	300 mm long, 5 mm wide
Max. radiant power:	350 J/m^2
Pulse duration:	100 s

ORTHOPHOS 3 DS has been inspected by the VDE Testing and Certification Institute for compliance with EN 60601-1, EN 60601-2-28 and EN 60601-1-3 and has been found to comply with these regulations.

Original language: german

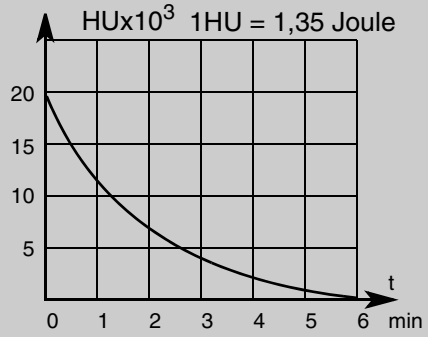
CE
0123

This product is provided with a **CE** marking in accordance with the regulations stated in the Directive 93/42/EEC of June 14, 1993 concerning medical products.

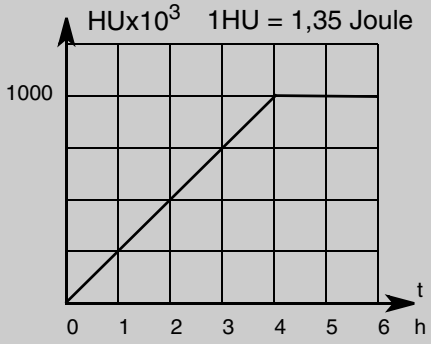
Reg. No.: China
SFDA (I) 20053301583

Cooling curve for the tube housing:

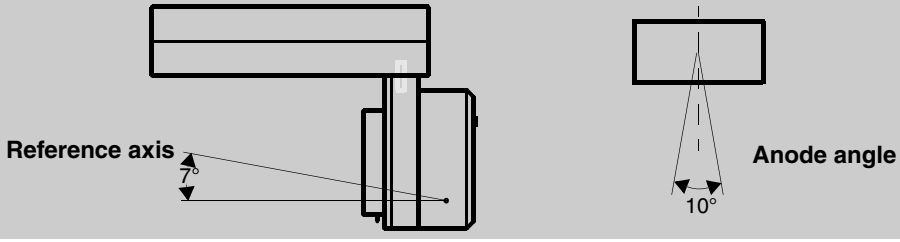
Anode cooling caracteristic:



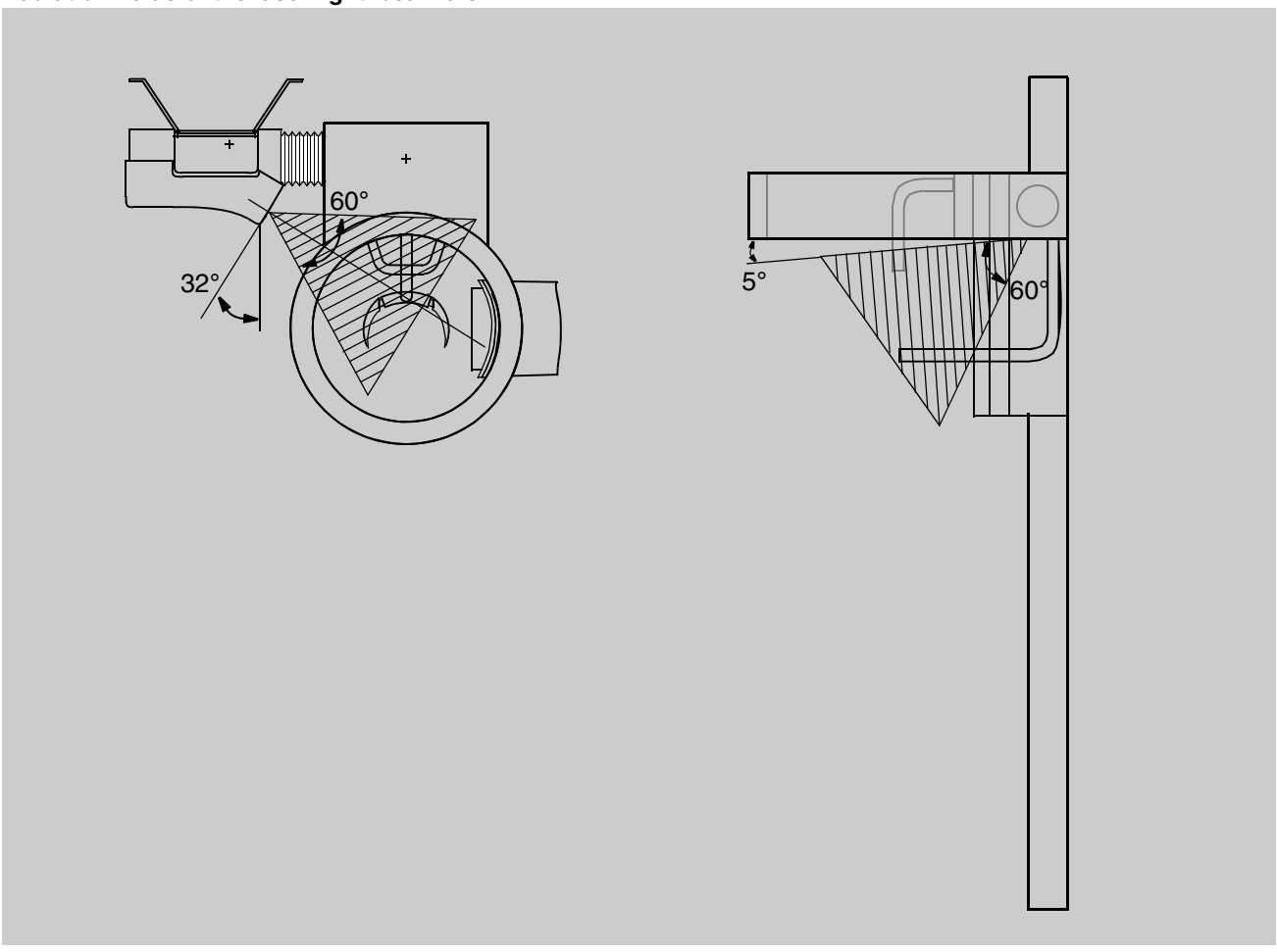
Heating curve for tube housing:



Reference axis:

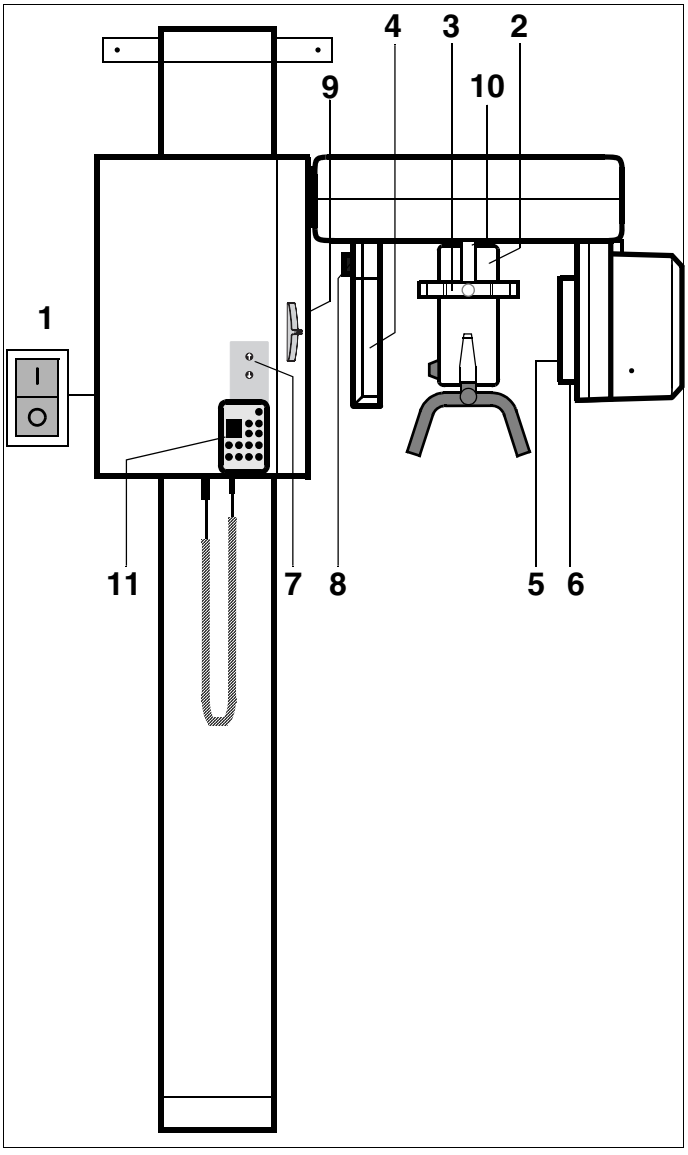


Radiation fields of the laser light localizers:



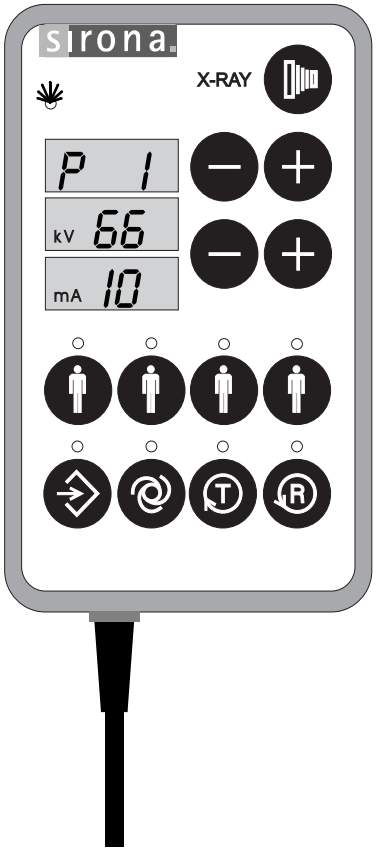
3 Operating Controls and Displays

3.1 Unit



1. Main switch
2. Patient positioning mirror
3. Head holder with adjusting knob for temple supports
4. Image receiver
5. Diaphragm
6. Diaphragm wheel
7. Height adjustment buttons
   Additional function: key ↑ switches light localizer on
8. Knob for image receiver removal or insertion
9. Height adjustment
   Light localizer horizontal light beam FH
10. Light localizer central light beam
11. Multitimer

3.2 Multitimer



”Unit ON” LED

X-ray **Radiation present indicator**

Exposure key

Digital display for exposure program / exposure time
with – + keys for exposure programs.

Digital display for kV/mA paired values
with – + keys for overriding kV values.

Patient symbol keys
with programmed kV/mA values

Memory program key
kV/mA matched values

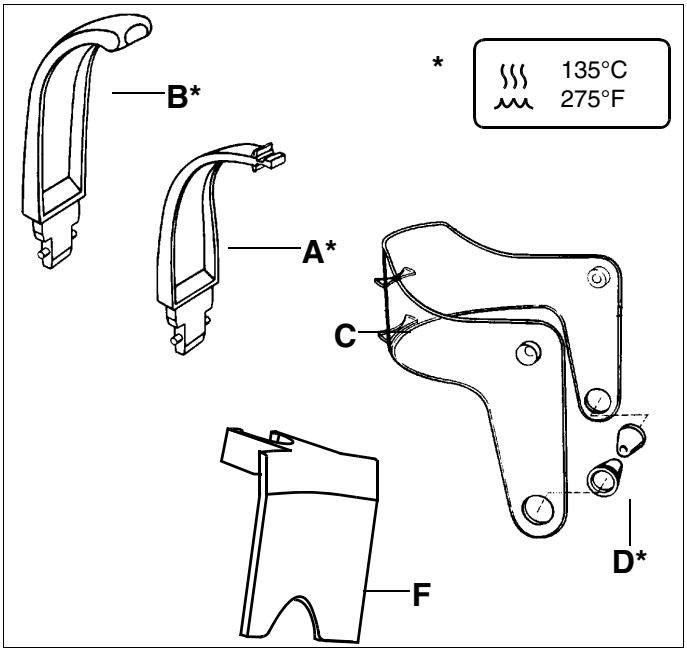
Key with service function

Rotation test key T
without radiation

Return key R
The LED blinks when the system is not ready.

4 Accessories

4.1 Rests and supports



With* marked accessories can be sterilized.
Sterilize only in an autoclave at 135°C, 2.1 bar (275°F).

For reorders:

A* Yellow bite block
(5 pcs) Order No. 89 21 843

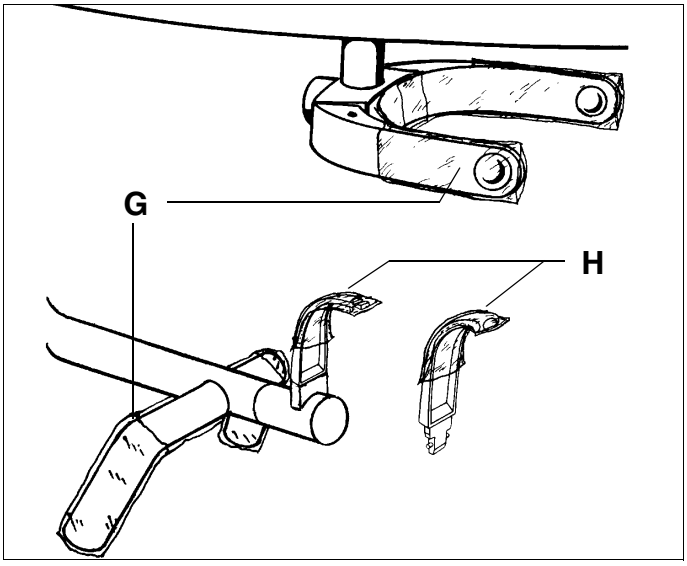
B* Yellow contact segment
for patient without front teeth
(5 pcs) Order No. 89 31 545

C Head positioner complete,
incl. 4x D Order No. 18 88 770

D* Ear fixation
(10 pcs) Order No. 18 88 838

F Contact spacer
Order No. 33 10 336

4.2 Hygienic Protective Covers



(disposable)

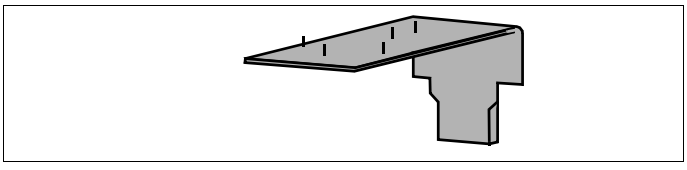
Before each exposure, the hygienic protective covers should be attached.
For better illustration of the components, the following figures are shown without the hygienic protective covers.

For orders:

G For temple supports and handles
(500 pcs) Order No. 33 14 098
Dimensions: 210 (140) mm x 57 mm

H For bite block and contact segment
(500 pcs) Order No. 33 14 080
Dimensions: 80 mm x 40 mm

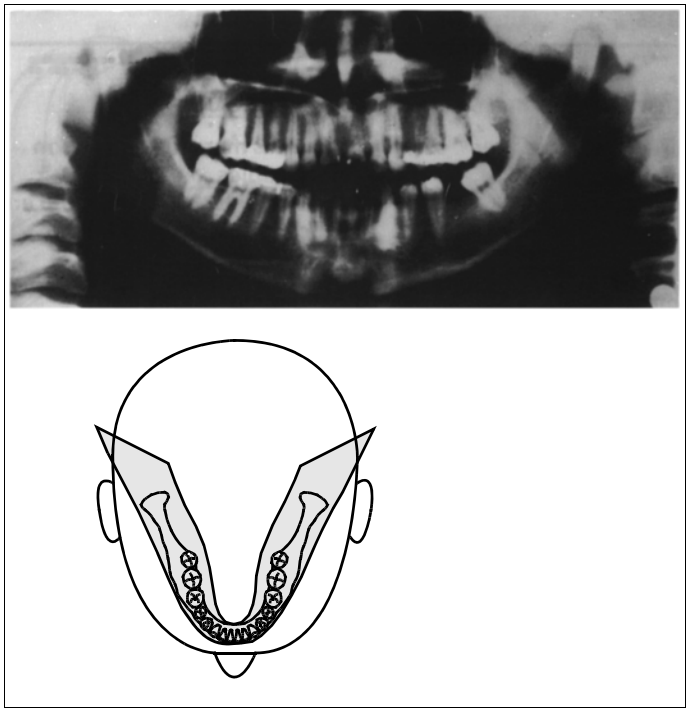
4.3 Service Tool



Needle phantom
Order No. 33 11 235

5 Exposure Programs

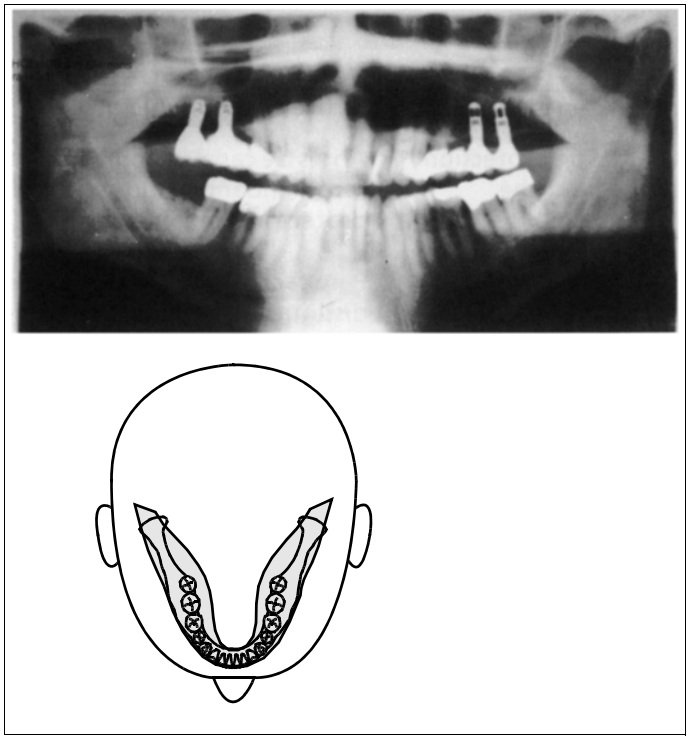
5.1 P1 Program



Complete standard exposure

- Yellow bite block or contact segment.

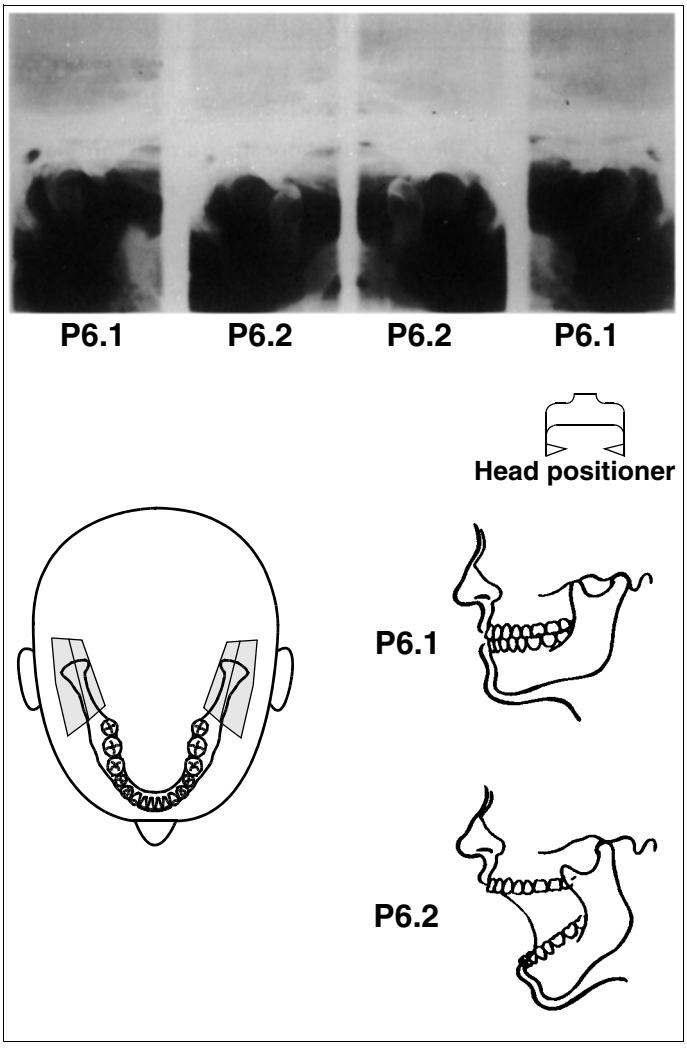
5.2 P11 Program



with constant 1.25-fold magnification
e.g. for implantology

- Yellow bite block or contact segment.

5.3 P6.1 / P6.2 Program



Lateral exposures of the temporoman-dibular joints with closed and open mouth.
(4 exposures on one image)

- Insert head positioner (see page 17).

P6.1 Outer Image: Closed mouth

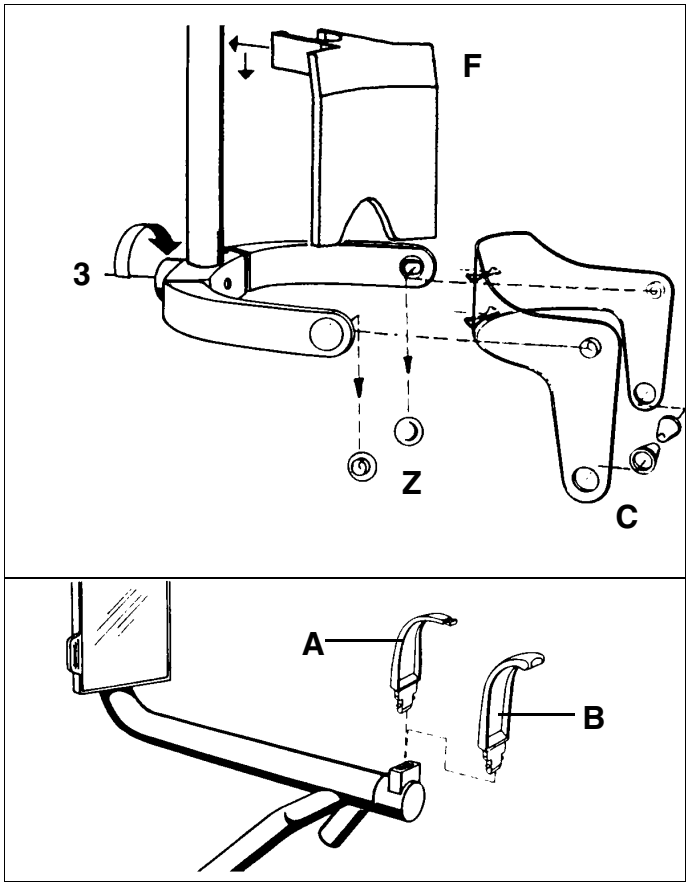
- Actuate **P6.1**
  After P6.1 is completed, the unit automatically returns to the initial position.

P6.2 Inner Image: Open mouth

- Have the patient open his mouth and actuate **P6.2**.

6 Operation

6.1 Preparing the Exposure



Insert Contact Spacer F

Application: For all exposure programs.

Always place the contact spacer where, as a result of anatomical features, with correct head positioning there is no contact with the forehead (no 3-point fixing).

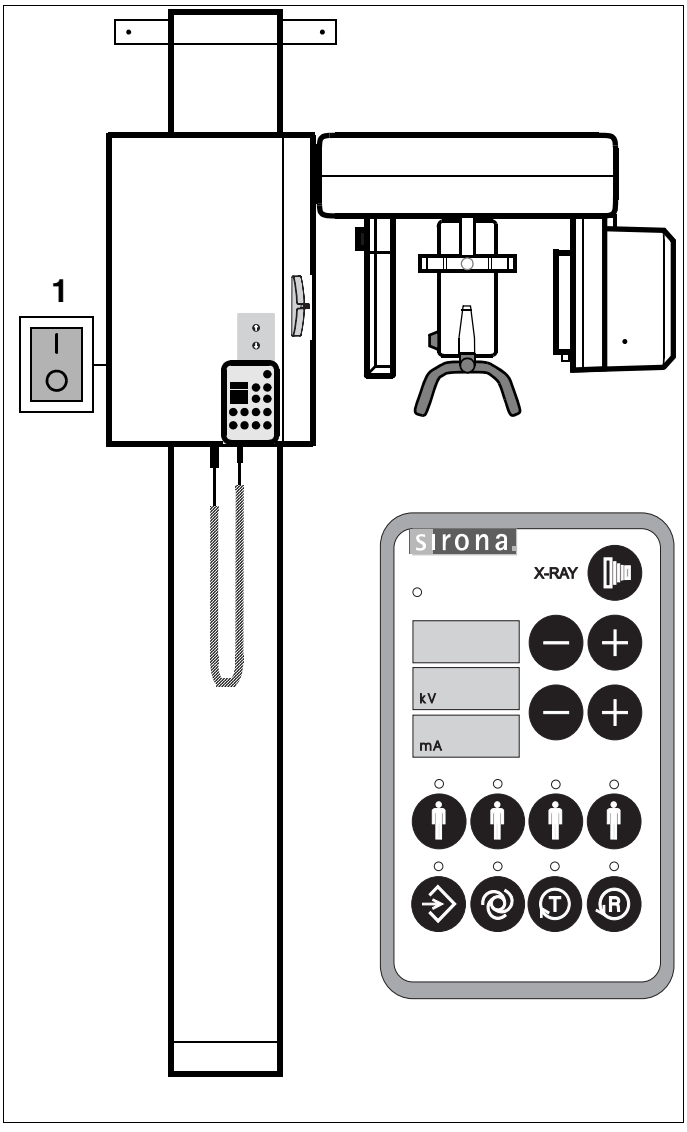
After positioning the head, press the contact spacer onto the tube and push it down to the forehead contact.

Insert Head Positioner C

Application: Exposure program P6.
Open temple supports with knob (3). remove rubber inserts **Z** and insert head positioner up to stop.

Insert Bite Block A

or contact segment **B**.
Application: Exposure programs P1 and P11.



Switching ON the Unit

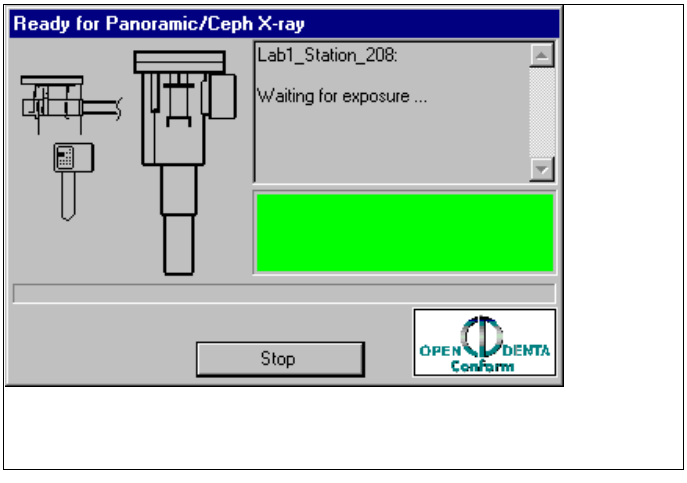
ATTENTION

Following extreme temperature fluctuations, condensate formation may occur; therefore please do not switch on the device until normal room temperature has been reached (see chapter "Technical Description").

- Depress the main switch (1) into the "**I**" position and allow one minute warm up time.
- The LED in the upper left corner of the Multitimer will light up.
- The unit adjusts itself automatically:
- The rotating unit moves a little to the right and left.

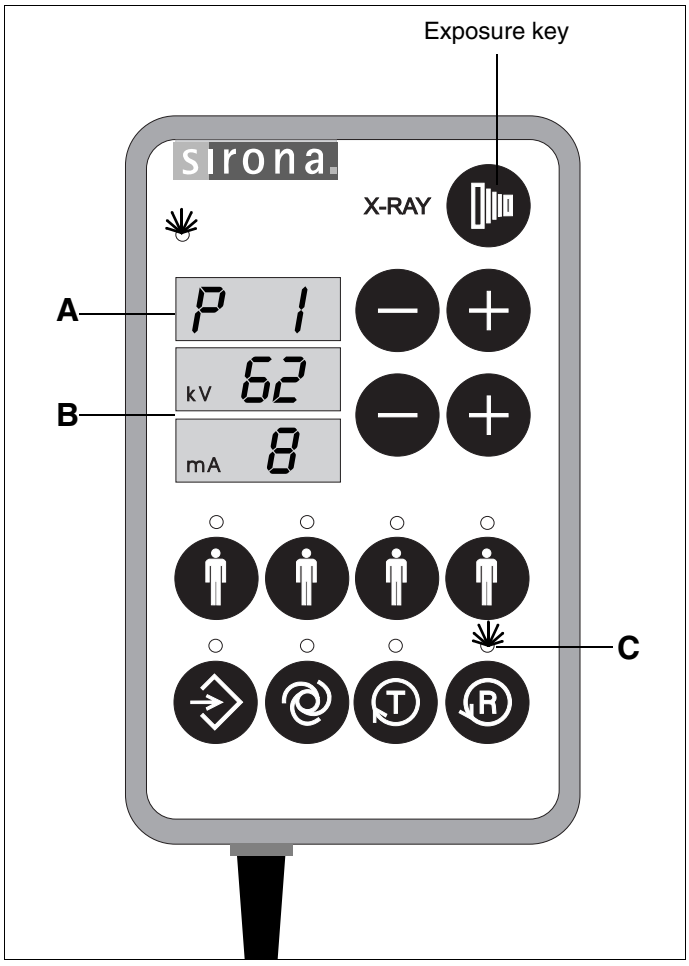
ATTENTION

When switching on the unit, there must not be a patient positioned in the unit.
If a fault occurs which requires switching the unit off and then back on again, the patient must be taken out of the unit at the latest before switching it on again!



Switching ON the PC

- **Prepare SIDEXIS program on PC** for ORTHOPHOS (XP) exposure stand-by
(see SIDEXIS User's Manual).



At the Multitimer

the program and exposure parameters employed with the last patient appear.

A shows you the exposure program sequentially and the respective maximum exposure time.

B gives you the **kV/mA** matched value pair. The LED over the respective patient symbol lights up.

C LED over the return key **R** blinks.

Move the rotating unit into place for patient positioning by tapping one of the return keys **R**.

NOTE

*You can release a **test rotation without radiation** via the exposure button after having pressed the **T** button.*

The LED over the **R** key at the Multitimer switches off to let you know that the unit is ready for the exposure.

Help Message
Should the LED over the **R** key go on blinking, call up the **help message H3/H4** to look for the reason.
List of Help Messages see page 30.

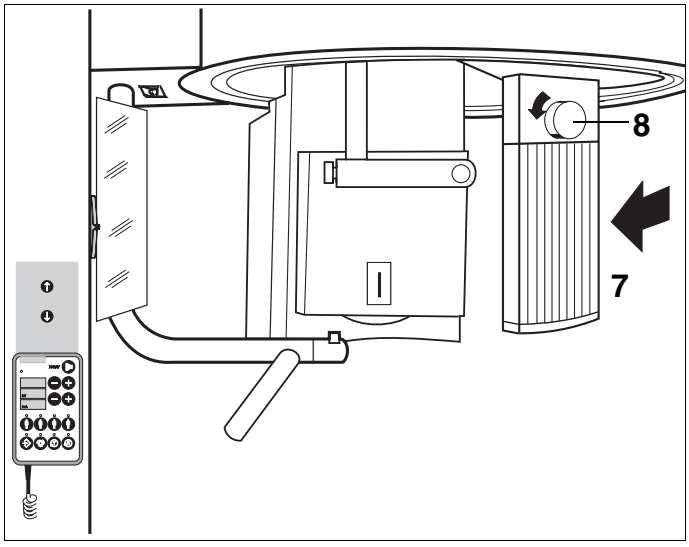


Image receiver

- The image receiver **7** must be pushed all the way to the stop (turn the rotary knob **8** to the left).

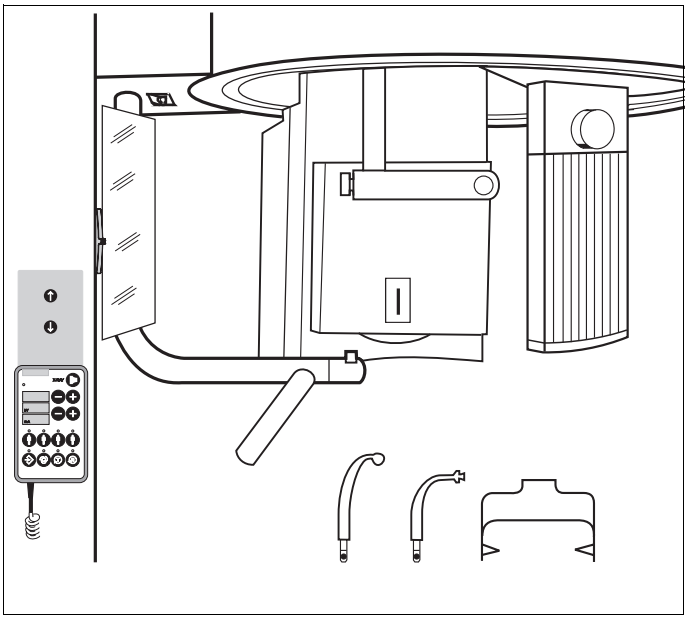
NOTE

*To remove the image receiver, turn the rotary knob **8** to the right and pull the image receiver out.*

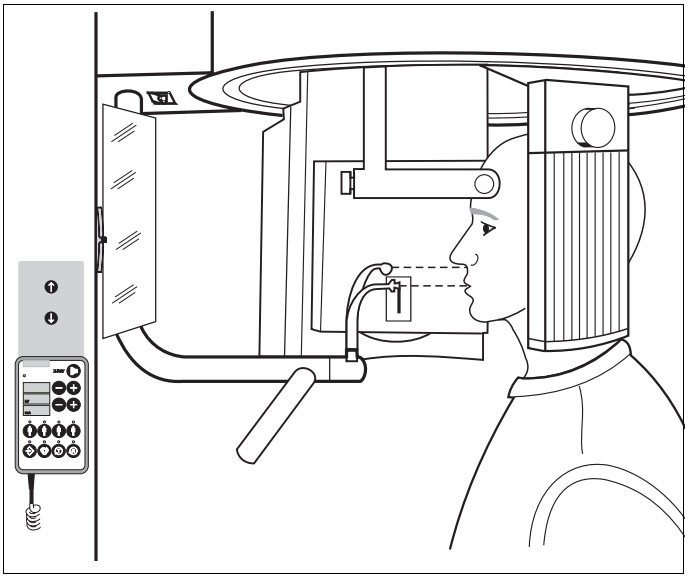
ATTENTION

Do not drop it!

6.2 Positioning the Patient



- Have the patient **remove all metallic objects**, such as glasses and jewelry, from the head and neck regions. Have him take out removable dentures.
- Physical constitution, clothing, bandages etc. must not interfere with the functioning of the unit! Perform a test run with the **T** button, (see page 19)
- Insert bite block / contact segment or head positioner, see page 17
  For selection see chapter **"Exposure Programs"**.



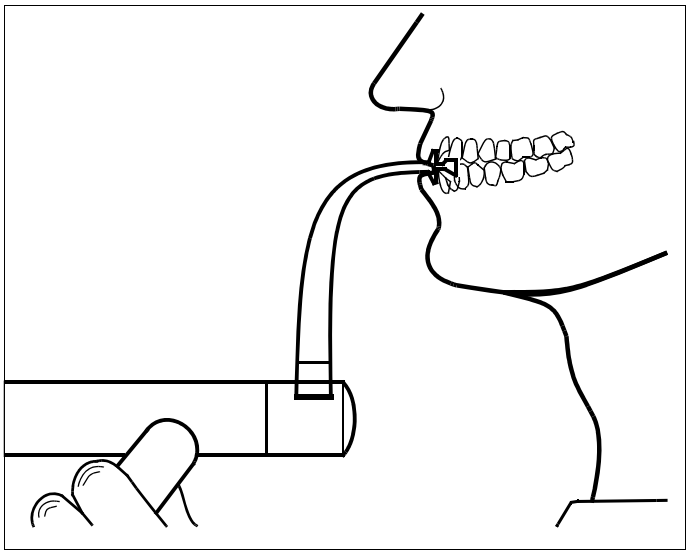
Standard Exposure Program P1 and P11...

- Have the patient stand in front of the mirror.

Pressing the height adjustment key ↑ automatically switches on the light localizer for 1minute.

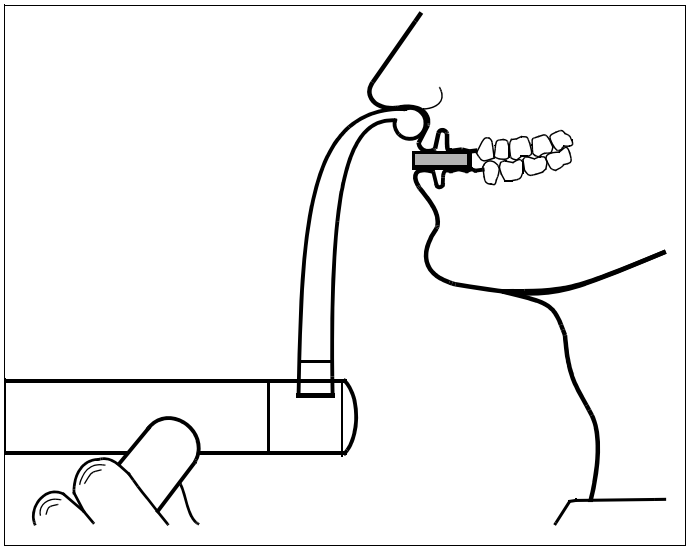
NOTE

Please make sure that the light beam strikes the eyes of the patient only very briefly.



… with Bite Block

- Using the ↑ and ↓ buttons, adjust unit height so that the **bite block and the anterior teeth match up**.
- Have the patient grip the handles.
- Have the patient bite the bite block at the indentation.
  The upper anterior teeth should be directly in the indentation, and the lower anterior teeth should be moved forward up to the stop.



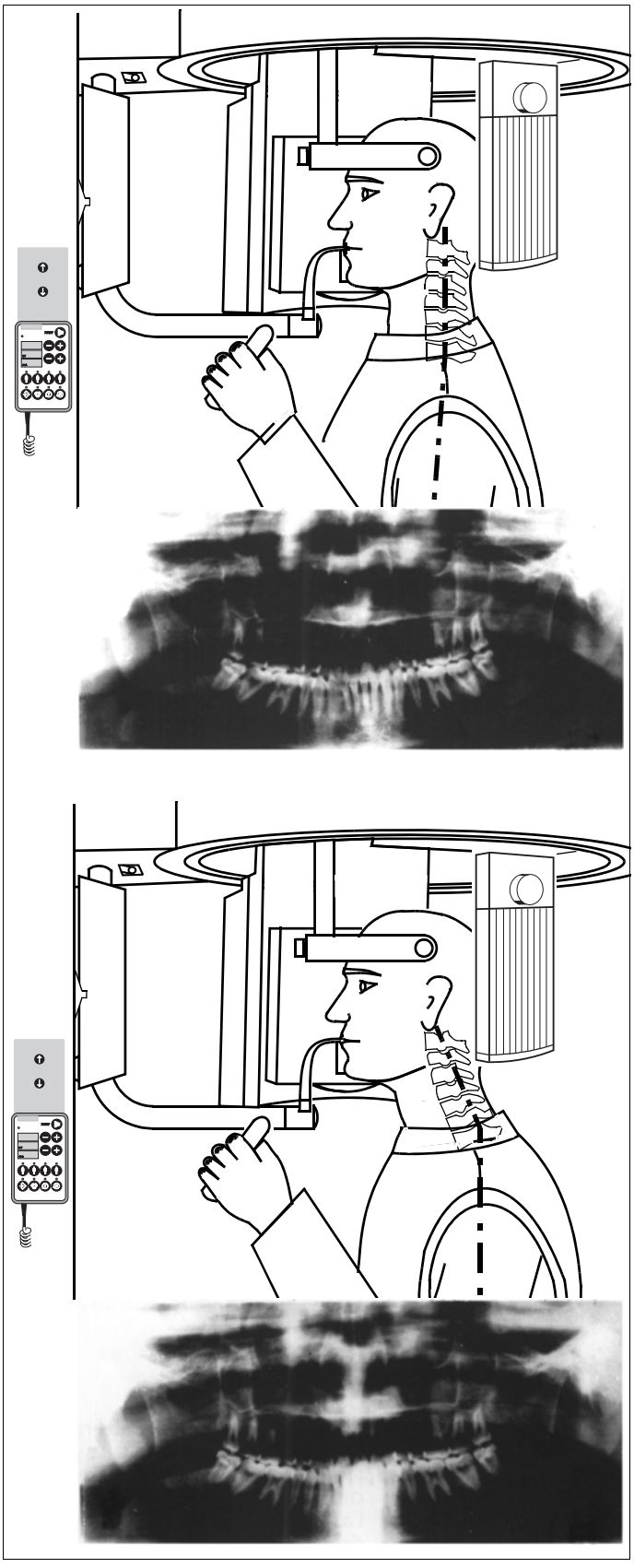
… with Contact Segment

For patients without anterior teeth.

- Adjust the unit height so that **contact segment and subnasals match up**.
- The contact segment should be just under the patient's nose.
- **Ensure that the upper and lower jaws are lined up with each other**.
  This is facilitated by a cotton roll.

NOTE

The height adjustment motor starts up slowly and then picks up speed. Motoric movement is accompanied by an acoustic signal.



- Make certain the **spine is tilted slightly** as shown.

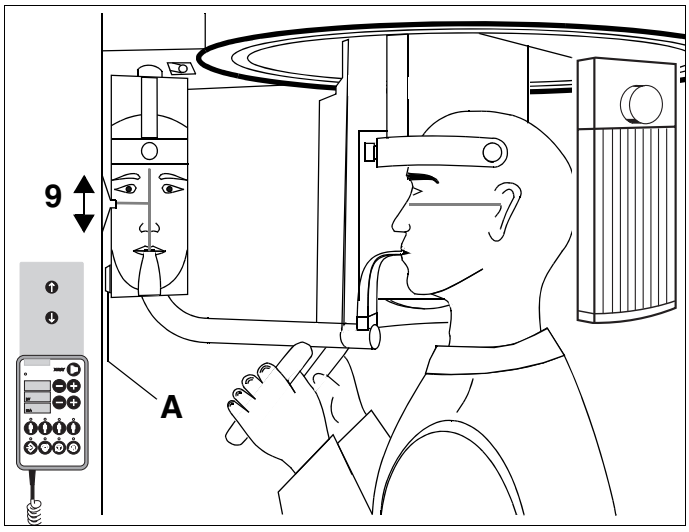
This moves the patient's cervical vertebrae into a more stretched out position.

The cervical vertebrae ”stretched out” ensures that the area of the anterior teeth is not over exposed.

In special cases, it is also possible to position for sitting patients.

CORRECT

INCORRECT



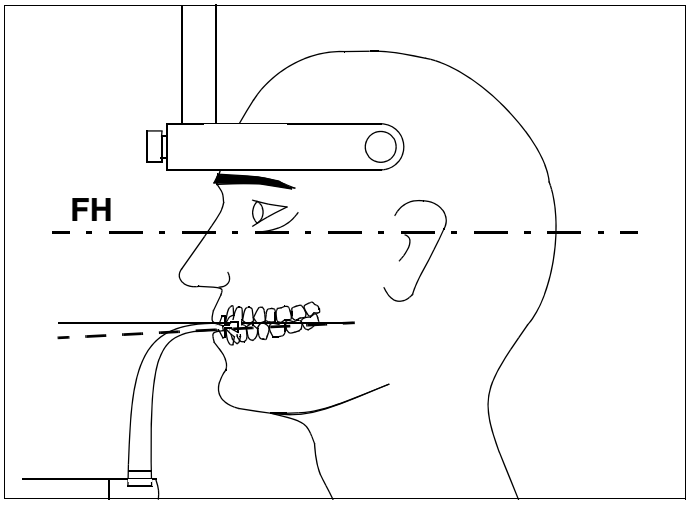
- Swing out the mirror by pressing on **A**.
- Position the patient's head so that the **bite plane is tilted slightly forward**.
- Switch the **light localizer** on by pressing briefly on the height adjustment key ↑ .
  The light localizer serve for the correct positioning of the patient.

NOTE

Please make sure that the light beam strikes the eyes of the patient only very briefly.

NOTE

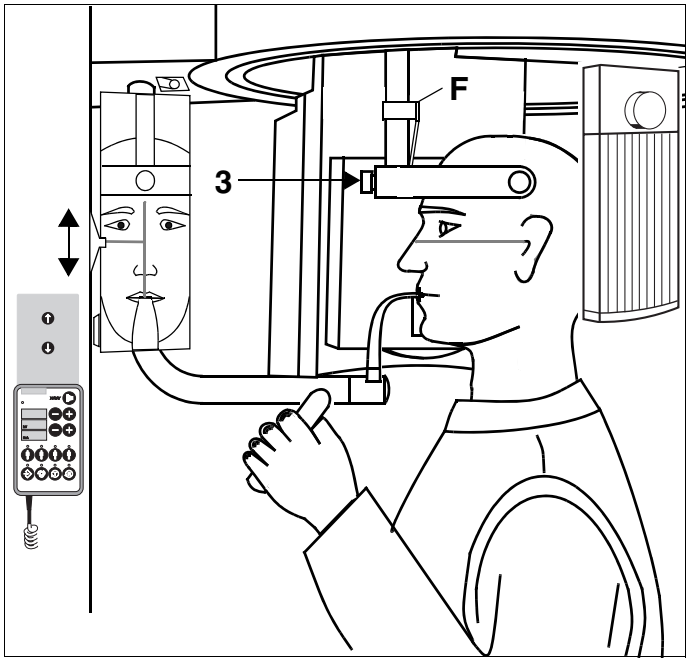
The light localizer switches off automatically after about 1 minute.



The horizontal light beam FH

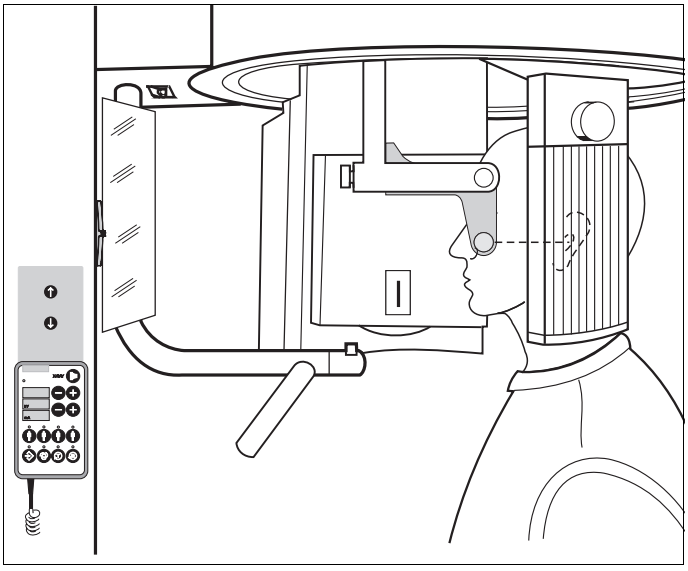
should go through the lower margins of the orbits and the upper margin of the external auditory orifices (**F**rankfurt **H**orizontal).

- For this reason the FH localizer (9) can be adjusted manually upwards and downwards.
- Finely adjust the head inclination for the FH line adjustment by tapping the buttons ↑ or ↓ for vertical unit movement.



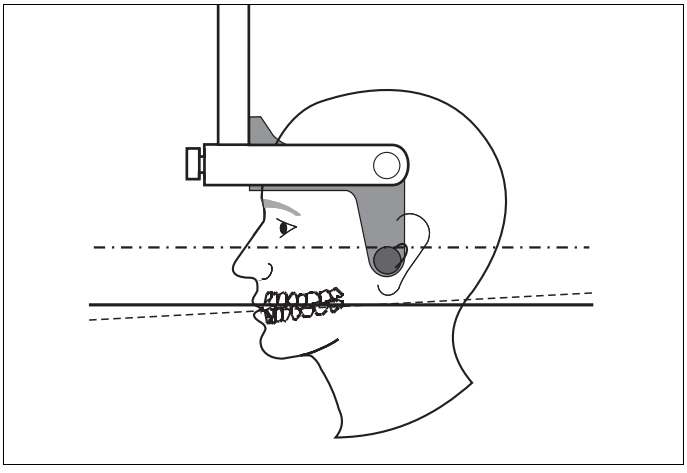
The central light beam

- should be directed onto the center of the anterior teeth or the middle of the face.
- Align the center of the anterior teeth or the middle of the face to the **central light line**.
- Close the temple supports with knob (3).
- Insert contact spacer F (see page 17) and slide down until it makes contact with the front.
- Swing back the mirror.
- Have the patient take a small step toward the column.
- Recheck the FH position.



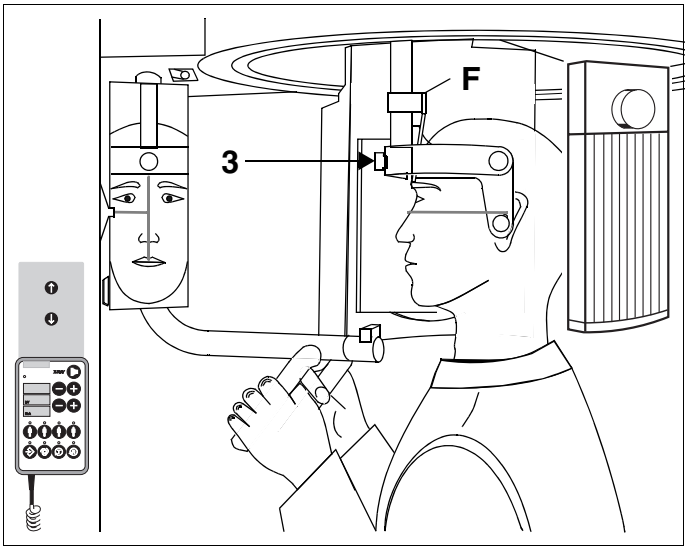
Exposure of the Temporo-mandibular Joint. P6 Program with Head Positioner

- For these exposures insert the head positioner (see page 17).
- Remove bite block.
- Using the ↑ and ↓ buttos, adjust unit height so that ear fixations and external auditory canals match up.



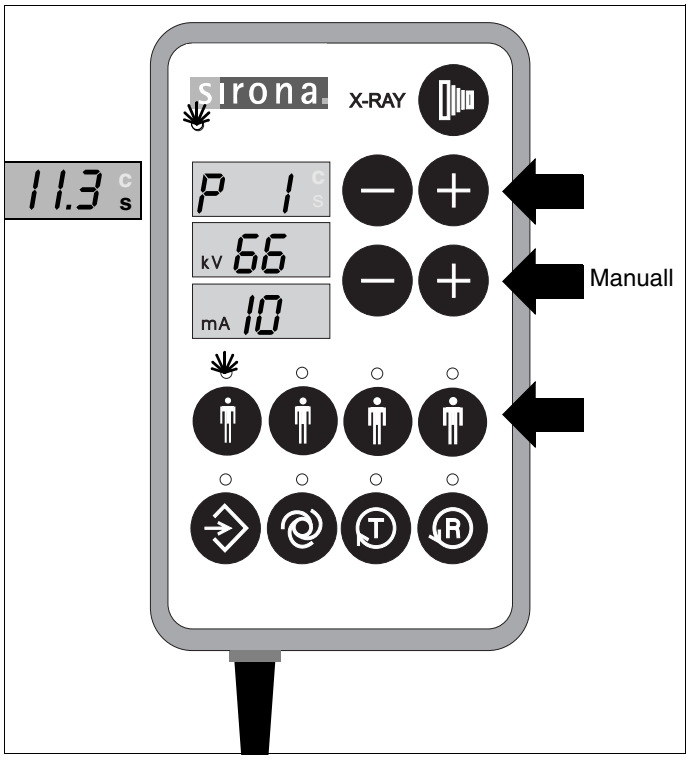
- Position the patient's head in the head positioner. Close the temple supports so that the ear fixations are inserted in the external auditory canals.
- Swing out the mirror.
- To set the correct position, switch on the light localizer by pressing the height adjsutment key ↑ .
  The horizontal light beam FH should go through the lower margins of the orbits and the upper margins of the external auditory orifices (**F**rankfurt **H**orizontal plane **FH**).

For this reason the FH localizer (9) can be adjusted manually upwards and downwards.



- Ensure that the **spine is slightly tilted** as described before.
  (Have the patient take a small step toward the column).
- Close temple supports (3) with knob.
- Insert contact spacer **F** (see page 17) and slide down until it makes contact with the front.
- Swing back the mirror.

6.3 Selecting Data at the Multitimer



Select the Exposure Program

- Select the Exposure Program by pressing the – + keys.

The exposure program selected, e.g. P1, and the corresponding maximum exposure time are alternatively shown on the digital display.

NOTE

*When, with preselection of the exposure program, "**O 1**" appears on the display instead of, for example, "**P 1**", you have erroneously selected a mode provided for servicing. You can leave this mode by pressing the **"Memory"** button and then **"Program +"** or by switching to another exposure program.*

Select Exposure Data

by tapping one of the four patient symbol keys.

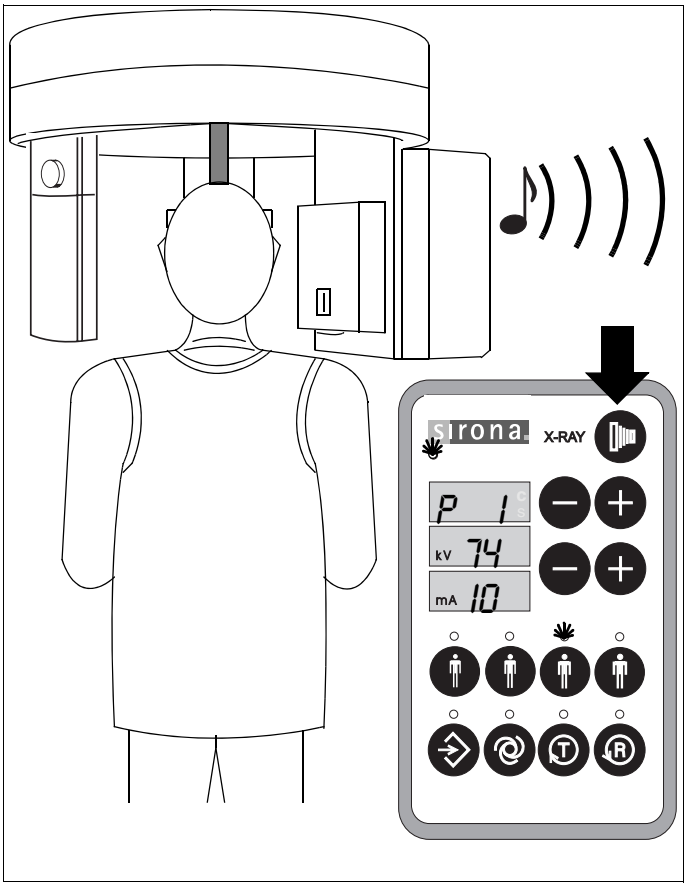
The LED above the key will then light up, and the respective kV/mA matched pair will appear on the digital display.

Manually, the exposure data can be **modified** with the **– + keys**.
The LED over the patient symbol key is then no longer illuminated.

The mA value is the same for all kV values. (See chapter "**Program Values**").

The kV/mA matched values for the patient symbol keys are factory programmed. Should you need to modify these values, see the chapter entitled "**Programming**".

6.4 Releasing the Exposure



ATTENTION

Operator: Observe the radiation protection guidelines explained, see page 6.
Before releasing the exposure always check display for proper exposure data for the patient beeing radiographed.

- **The exposure is released by keeping the exposure key pressed**.

The rotation movement runs automatically in accordance with the exposure program selected.

For P6 program only
The rotation unit returns back into the start position after having completed the program part P6.1. Then have the patient open his mouth wide and release the second program part P6.2 .

During radiation
the X-ray radiation indicator lights up. The radiation duration is additionally accompanied by an **acoustic signal**.

- **The exposure ends when the LED over the R key flashes. Rotation and radiation automatically switch off**.

Open the temple supports and have the patient step out

Interrupting the Exposure
Automatic Exposure Blockage and Error Message
see next page.

The program number (e. g. P1) is indicated at the Multitimer.

After the end of the exposure
the exposure time actually required for the exposure lights up and the exposure is displayed on the PC.

NOTE

In case of disturbances of the data transmission to the PC, the unit changes automatically into a safe mode, which saves the acquired image until the image has been transmitted by a service program (SiRescue). The safe mode is indicated by the help message H4 20.

ATTENTION

In this condition the unit or the PC may not be switched off, in order to prevent the saved image from being deleted.

For operating the **SiRescue** service program please observe the corresponding software description in the **SIDEXIS User Manual.**

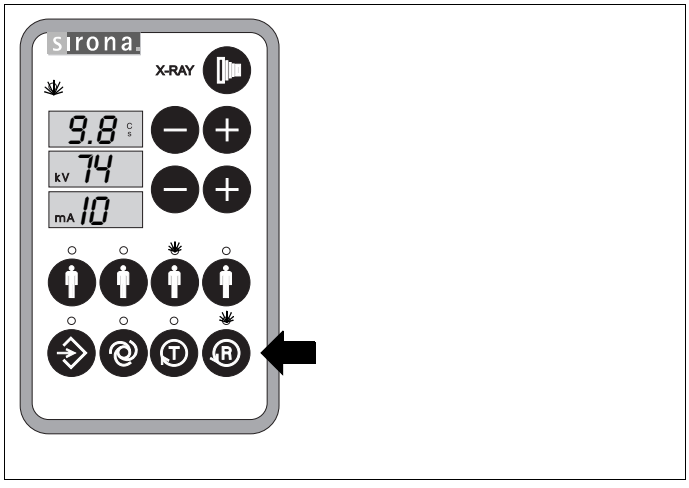
The help message H4 20 is no longer displayed after the image has been transmitted by the SiRescue service program.

NOTE

Only then may the units be switched off or put into the ready for exposure state.

After the exposure
Acknowledge awareness of the exposure time actually required for the exposure by pressing the return key **R**. Then bring the rotary unit in to the starting position by pressing the return key **R** once again.

After return travel to the start position the unit is **automatically ready for another exposure**.
See chapter 'Positioning the Patient'.



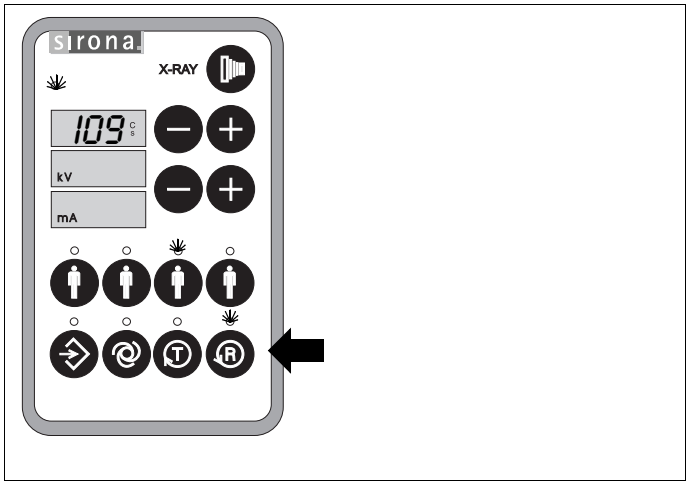
Interrupting the Exposure

If the exposure key is prematurely released, the exposure is interrupted and terminated.

The **kV/mA** value and the LED over key **R** blink at the Multitimer.
The exposure time passed until the interruption is shown.

Press the **R** key on the Multitimer twice.

Check patient positioning and repeat the exposure.



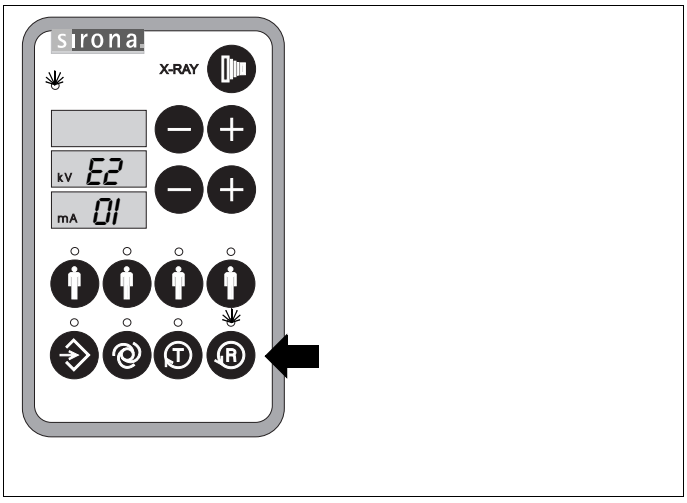
Automatic Exposure Blockage

(Protection of X-ray tube)

The automatic exposure blockage prevents premature triggering of a new exposure.

After the exposure key has been actuated, the automatic cool-off pause is indicated.
The LED over key **R** continues flashing until the cool-off time has elapsed.

The exposure cannot be triggered until the LED over key R has gone out.
Example see page 8



Error Message E ...

Messages such as E2/01 in the **kV/mA** field indicate errors.
The LED over the **R** key blinks.
All unit functions are blocked.

- Press the key R on the Multitimer to reset display (poss. more than once).
- If the error message E continues to light up, switch the unit off and back on, if for an exposure the X-ray image is displayed on the PC.

ATTENTION

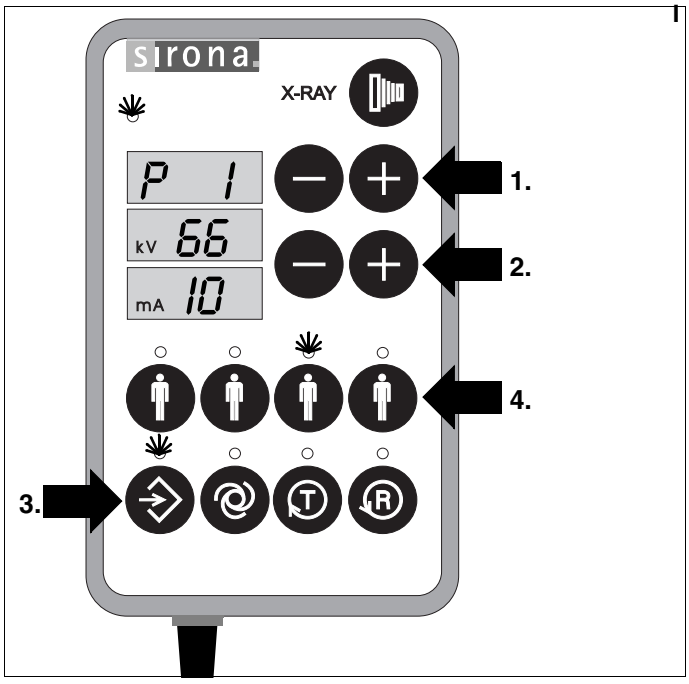
The turn-off time must be at least 60s; otherwise the unit will not function correctly.

If error message has disappeared, all unit functions are normal again.

For **List of Error Messages** with remedy discription see page 35.

7 Programming

7.1 Programming Procedure



In the factory **kV/mA** values have been assigned to the four program buttons.

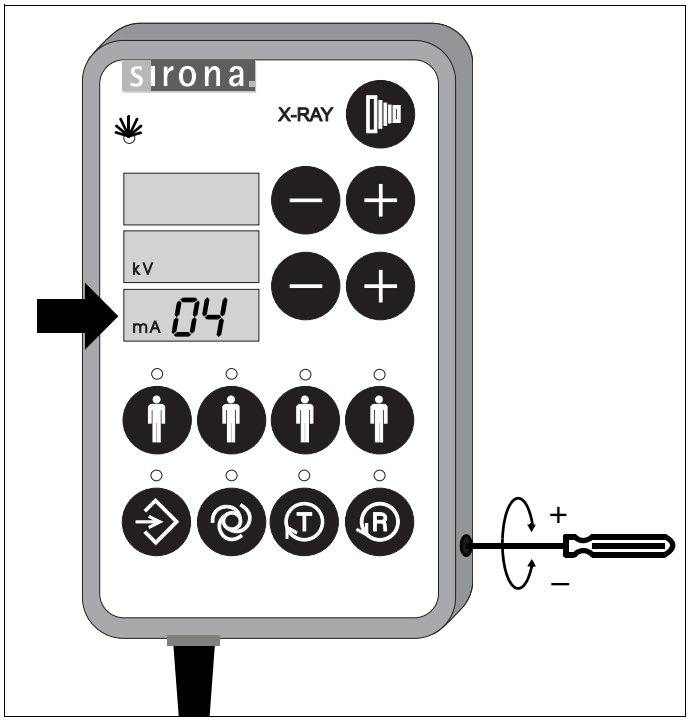
For free programming the buttons can be programmed with different values.
See chapter '**Program Values**'.

1. Push buttons **– +** to select program number P1 ... to be changed.
2. Push **– +** buttons to set desired **kV value** on the digital display.
3. Push memory button. The LED over the memory button blinks.
4. Push the patient symbol button to be reprogrammed. The LED above this button lights up.

The LED above the memory button is switched off.
The new values are now stored.
Programming is complete.

Please enter the new value in the '**Freely programmed values**' table.

7.2 Adjustment of the Exposure



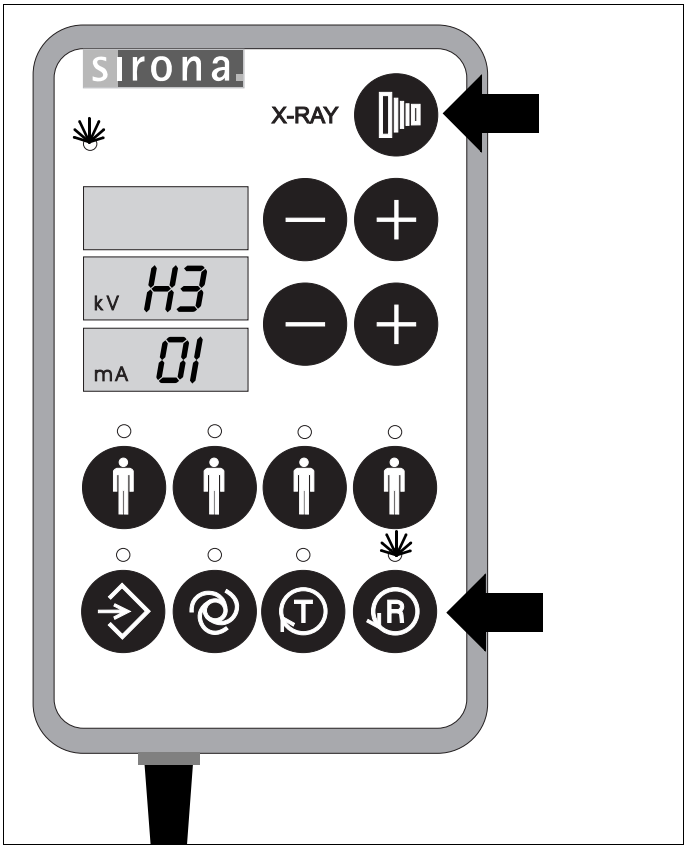
The adjustment of the exposure is set to 03 at the factory.

If the degree of exposure is to be changed, use the supplied screwdriver as shown in the illustration.
During adjustment the corresponding switch position is briefly displayed
(example 04).
Step switch set to– = lower dose,
noisy exposures
Step switch set to+ =higher dose,
low-noise exposures

NOTE

*Changing the adjustment of the exposure automatically alters the programmed **kV/mA** values.*
Chapter 'Program Values'., see page *31.*

8 List of Help Messages H3/H4



You want to release an exposure but the Ready-LED on Multitimer above the **R** key is still blinking:

ATTENTION

In case of unit failure the test key T on the Multitimer must be pressed first (radiation protection measure!).

- Press the **X-ray** exposure key on Multitimer. **H3/H4** help message appears on the **kV/mA** display.
- Read on the following list what is to be done to get the unit ready for the exposure.
- **Before** carrying out the corresponding indication, press return key **R** on the Multitimer to acknowledge the help message.

Help Message H3

H3 01 Press one of the **R** buttons to return the rotation unit to the start position.

H3 20 Press **R** key on Multitimer to confirm exposure data.

Help Message H4

H4 01 Slide in the image receiver up to stop.

H4 03 Set SIDEXIS operational on the PC.

H4 10 Image receptor not suitable for the set exposure.

H4 20 Transfer exposure by SiRescue service program to the PC, see SIDEXIS User Manual.
CAUTION Do not switch off the unit until the help message goes out.

9 Program Values

9.1 Program Values world-wide (except USA and Asia)

Kennziffer 30

Program	Program duration approx.	Exposure time	Factory-programmed values with an adjustment of the exposure of 03				Freely programmed values or values with other adjustment of the exposure: .... – please enter here –			
P1	21s	11.3s	66/10	70/10	74/10	78/10				
P6.1 + P6.2	21s + 21s	7.8s	68/10	72/10	76/10	80/10				
P11	18s	11,3s	66/10	70/10	74/10	78/10				

These values serve only as user reference times.

Possible kV/mA combinations – can be selected manually

60	62	64	66	68	70	72	74	76	78	80					**kV**
10	10	10	10	10	10	10	10	10	10	10					**mA**

9.2 Program Values USA

Index 2A

Program	Program duration approx.	Exposure time	Factory-programmed values with an adjustment of the exposure of 03				Freely programmed values or values with other adjustment of the exposure: .... – please enter here –			
P1	21s	11.3s	66/10	70/10	74/10	78/10				
P6.1 + P6.2	21s + 21s	7.8s	68/10	72/10	76/10	80/10				
P11	18s	11,3s	66/10	70/10	74/10	78/10				

These values serve only as user reference times.

By actuating one of the two smaller or one of the two larger patient symbols, you can change between the two kv/mA pair groups. By actuating the kV/mA + - keys, you can select the individual values of the kV/mA groups.

Possible kV/mA value pairs – manually selectable with the two smaller patient symbols

60	60	60	62	64	66	68	70	72	74	76					**kV**
6	7	10	10	10	10	10	10	10	10	10					**mA**

Possible kV/mA value pairs – manually selectable with the two larger patient symbols

60	62	64	66	68	70	72	74	76	78	80					**kV**
10	10	10	10	10	10	10	10	10	10	10					**mA**

9.3 Program Values Asia

Index 1A

Program	Program duration approx.	Exposure time	Factory-programmed values with an adjustment of the exposure of 03				Freely programmed values or values with other adjustment of the exposure: .... – please enter here –			
P1	21s	11.3s	68/10	72/10	76/11	78/11				
P6.1 + P6.2	21s + 21s	7.8s	70/10	74/10	78/11	80/11				
P11	18s	11,3s	68/10	72/10	76/11	78/11				

These values serve only as user reference times.

By actuating one of the two smaller or one of the two larger patient symbols, you can change between the two kv/mA pair groups. By actuating the kV/mA + - keys, you can select the individual values of the kV/mA groups.

Possible kV/mA value pairs – manually selectable with the two smaller patient symbols

60	62	64	66	68	70	72	74	76	78	80					**kV**
10	10	10	10	10	10	10	10	10	10	10					**mA**

Possible kV/mA value pairs – manually selectable with the two larger patient symbols

60	62	64	66	68	70	72	74	76	78	80					**kV**
11	11	11	11	11	11	11	11	11	11	11					**mA**

10 Care the surfaces

Cleaning

Remove dirt and disinfectant residues regularly with a normal commercial cleaning medium.
Do not allow any liquid to enter the ventilating slots!
To avoid permanent staining, quickly clean away any medicament that spills on the surface.

Do not clean the lens of the laser with alcohol.

Disinfecting

Disinfecting is possible by wiping with surface disinfectant. Observe the directions of the manufacturer when using! Use only tested and approved media!

Do not use agents containing the components phenol, peracetic acid, peroxide and other agents splitting up oxygen, sodium hypochlroite and agents splitting off iodine.

11 Error Messages

E... error messages		Remedy
E1 01	One of the keys on the Multitimer was pressed during start-up of the unit.	Press **R** key on Multitimer to reset display.
E1 03	Faulty communication with the unit.	Press **R** key on Multitimer to reset display.
E2 01	Appears after pressing exposure key. X-ray head overheated. Cool-down periods ignored.	Press **R** key on Multitimer to reset display.
E2 03	Faulty communication with the Multitimer.	Press **R** key on Multitimer to reset display.
E2 04	Zero-Power was re-initialized.	Press **R** key on Multitimer to reset display. Freely programmed values (see page 31) are canceled, sorry. Please reprogram (see page 29).
E2 10	Max. radiation time of program exceeded	Press R key on Multitimer to reset display.
E2 20	Appears after pressing the exposure key, e.g. if x-ray room door contact not closed. Exposure lead in Multitimer cable damaged.	Close x-ray room door. Press **R** key on Multitimer to reset display. If error re-appears, poss. break in cable.
E2 35	Invalid data in data memory.	Press R key on Multitimer to reset display.
E3 09	Movement of height adjustment obstructed.	Check that height adjustment can move freely. Press **R** key on Multitimer to reset display. **WARNING!** If this fault message occurs repeatedly during the motor-driven up and down movement of the rotary unit, especially when no patient is positioned, switch off the unit immediately and inform your service engineer without delay.
E4 01	Exposure interrupted by SIDEXIS.	Press **R** key on Multitimer to reset display. Check PC for readiness.

For error messages which are not contained in this list, switch the unit off and back on if for an exposure the X-ray image is displayed on the PC.

ATTENTION

If an error is displayed again after switching the unit off and then on again, please contact your service technician.

ATTENTION

The turn-off time must be at least 60s; otherwise the unit will not function correctly.

12 Inspection and maintenance

Inspection and maintenance work must be performed at regular intervals to protect the safety and health of patients, users and third parties.

Annual inspection performed by the operator or other authorized personnel

As the operator, you should ensure the safety and reliability of your system by performing maintenance on it at regular intervals (at least once annually) or having this work performed by your dental dealership.

Maintenance performed by the service technician

In addition to the scheduled annual inspection by the user or persons contracted to perform this, a maintenance inspection must be performed after 4, 7 10 and then every two years.

Checking image quality

At regular intervals, however at least once a year, the user must evaluate the image quality.

For digital image receptors, the increasing number of repeated image processing operations to be made with the brightness or contrast control in the image processing software (e.g. SIDEXIS) is used as evaluation criterion.

If this evaluation criterion is considered to be satisfied irrespective of the patient's anatomy or possible error sources such as patient positioning, a technician should be consulted immediately for elimination of possible system defects.

In addition it is necessary to observe country-specific requirements.

Furthermore, we would like to call your attention to our Quality Image Service. For this, please contact your dental dealer or the manufacturer directly.

We reserve the right to make any alterations which may be due to technical improvements.

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